Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims

1. (currently amended) A decoder for performing data error correction ~~within a codeword~~ on codeword data comprising:

means for calculating a syndrome from said codeword data;

means for generating an error polynomial from said syndrome;

means for determining a value corresponding to the number of data errors within said codeword data from said error polynomial;

means for determining ~~an error location~~ error locations from said error polynomial; and

means for calculating ~~an error magnitude~~ error magnitudes from said error polynomial,

said decoder characterized in that said means for determining said value corresponding to the number of data errors ~~is performed~~ operates on data corresponding to a first codeword while said means for determining said error locations and said means for determining said error magnitudes ~~are performed~~ operate on data corresponding to a second ~~codeword.~~ codeword,

wherein said means for determining a value corresponding to the number of data errors within said codeword data operates using a first Chien block.

2. (currently amended) The decoder of claim 1 further characterized in that said codeword data is forwarded as an output of said decoder should said value corresponding to the number of data errors within said codeword data be greater a threshold value.

3. (currently amended) The decoder of claim 2 further comprising:

means, responsive to receiving said codeword data, said error locations, and said error magnitudes, for correcting errors within said codeword data and forwarding result as said output of said decoder.

4. (currently amended) The decoder of claim 3 further characterized in that said error locations and said error magnitudes corresponding to said codeword data are completely calculated should said value corresponding to the number of data errors within said codeword data be less than or equal to said threshold value.

5. (currently amended) The decoder of claim 1 wherein said means for generating an error polynomial ~~is accomplished~~ operates using a Euclid's algorithm block.

6. (cancelled)

7. (currently amended) The decoder of claim 6 wherein said means for determining an error location from said error polynomial ~~is accomplished~~ operates using a second Chien block.

8. (currently amended) The decoder of claim 7 wherein said means for determining an error magnitude from said error polynomial ~~is accomplished~~ operates using a Forney algorithm.

9. (currently amended) The decoder of claim 6 wherein said means for determining an error location from said error polynomial, and said means for determining an error magnitude from said error polynomial ~~are accomplished~~ operate using a Chien/Forney block.

10. (currently amended) In a decoder used for error correction of ~~a codeword~~ codeword data, a method for determining error locations and error magnitudes comprising the acts of:

calculating a value corresponding to the number of codeword data errors;

forwarding said codeword data as an output of said decoder, should said value corresponding to the number of codeword data errors be greater than a threshold value; and

determining said error locations and said error magnitudes corresponding to said codeword data, should said value corresponding to the number of codeword data errors be less than or equal to said threshold value,

said method characterized in that said act of calculating said value corresponding to said number of codeword data errors is performed on data corresponding to a first codeword while said act of determining said error locations and said error magnitudes is concurrently performed on data corresponding to a second ~~codeword.~~ codeword,

wherein said act of calculating a value corresponding to the number of codeword data errors is accomplished using a first Chien search block.

11. (cancelled)

12. (original) The method of claim 11 further characterized in that said act of determining said error locations is accomplished using a second Chien search block.

13. (original) The method of claim 12 further characterized in that said act of determining said error magnitudes is accomplished using a Forney algorithm block.

14. (original) The method of claim 11 further characterized in that said acts of determining said error locations and said error magnitudes are accomplished using a Chien/Forney block.

15. (currently amended) A decoder for error correction of ~~a~~ ~~codeword~~ codeword data comprising:

means for calculating a value corresponding to the number of codeword data errors;

means for forwarding said codeword data as an output of said decoder, should said value corresponding to the number of codeword data errors be greater than a threshold value; and

means for determining error locations and error magnitudes corresponding to said codeword data, should said value corresponding to the number of codeword data errors be less than or equal to said threshold value,

said decoder characterized in that said means for calculating said value corresponding to said number of codeword data errors ~~is performed~~ operates on data corresponding to a first codeword while said means for determining said error locations and said error magnitudes ~~is concurrently performed~~ operate concurrently on data corresponding to a second ~~codeword.~~ codeword,

wherein said means for calculating said value corresponding to the number of codeword errors operates using a first Chien search block.

16. (cancelled)

17. (currently amended) The decoder of claim 16 further characterized in that said means for determining said error locations ~~is accomplished~~ operates using a second Chien search block.

18. (currently amended) The decoder of claim 17 further characterized in that said means for determining said error magnitudes ~~is accomplished~~ operates using a Forney algorithm block.

19. (currently amended) The decoder of claim 16 further characterized in that said means for determining said error locations and said error magnitudes ~~are accomplished~~ operate using a Chien/Forney block.